to be better in the allograft/autograft group ($p = 0.015$) when compared between groups. Multivariate analysis compared graft type, fracture severity, postoperative reduction, subsidence rate, range of movement and WOMAC score. The only finding was a statistical significant ($p = 0.025$) association with the graft type and range of movement.

Conclusion: Allograft/autograft may allow better recovery of long-term flexion, possibly due to reduced inflammatory response compared with synthetic bone graft. However, all other parameters such as maintenance of joint reduction and subjective outcome measures were comparable with the use of hydroxyapatite calcium carbonate bone graft. This study shows that synthetic bone graft is a suitable option in fixation of unstable tibia plateau fractures, avoiding risk of viral disease transmission with allograft and donor site morbidity associated with autograft.

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1A.11

Surgical management of infected tibial intramedullary nails

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Materials and methods: We present a series of 11 patients with infected tibial intramedullary nails which were treated at our tertiary referral centre from January 2000 to November 2009. All of them were males and the mean age was 36 years (26–47 years). All the patients had sustained post traumatic fractures which were treated with intramedullary nails. Four patients (36%) had sustained open fractures in whom adequate soft tissue cover was provided by plastic surgeons. Five of them (45%) were smokers.

All of them underwent surgical debridement. Nine out of 11 patients had removal of metal work followed by one or more of the following procedures such as reaming, exchange nailing, excision of sequestrum, application of antibiotic beads and stabilisation with a frame with or without several bone grafts at a later date.

Results: Out of 11 patients six (55%) had no further episodes of infection, three (27%) still need short courses of antibiotics when the disease flares up and two (18%) underwent amputation. Causative organisms were isolated in all the patients. Commonest organism was MRSA. Overall, most of the organisms were sensitive to Vancomycin and resistant to Penicillin.

Discussion: Despite exploring most of the surgical procedures described for infected tibial intramedullary nails we have potentially eradicated infection only in about half of our patients. Hence we would like to emphasise that this condition still remains a serious problem and demands further insight in its management.

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1A.12

Outcome of surgical management of post traumatic tibial osteomyelitis

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Materials and methods: We present 33 patients with confirmed tibial osteomyelitis, from June 1993 to November 2009. There were sustained open fracture at the time of initial injury. 25 patients (76%) were referred from peripheral hospitals and had undergone an average of three procedures before referral. 90% of patients had discharging sinuses.

A systematic approach adopted during operation included;

1. With holding prophylactic antibiotics till adequate soft and bony tissue samples were sent for microscopy, culture, sensitivity and histology.
2. Adequate soft tissue and bone debridement.
3. Firm stabilization of the bony fragments in case of instability.
4. Empirical administration of broad spectrum antibiotics till results of culture and sensitivity are available.
5. VAC foam dressings in open cases.

Results: 18 (56%) patients did not have any relapse. Nine (26%) patients improved significantly but have occasional episodes of pain, redness or discharge well controlled with oral antibiotic courses. Six patients needed amputation due to extensive bony and soft tissue involvement. We were able to isolate causative organisms in 81% of cases. The commonest organism isolated was Staphylococcus followed by Pseudomonas and MRSA. Most of the organisms were sensitive to Vancomycin and resistant to Penicillin.

Discussion: Systematic approach, adequate debridement, intraoperative assessment of bone along with regular clinical, laboratory and radiological assessment remain the mainstay in management of chronic tibial osteomyelitis.

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1A.13

Anatomical description of the distal tibial anatomy in relation to fracture fixation using minimally invasive plating techniques

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Introduction: Fracture fixation using minimal invasive plating techniques around the distal tibia are well described with anatomically designed plates for this purpose. There are potential hazards and complications of inserting plates around the distal tibia using percutaneous methods with possibility of damage to neurovascular structures and impingement along tendons. Our study provides an anatomical description of the distal tibia and its relations to surrounding structures including its dimensions to provide guidance to safely positioning antero-medial and medial tibial plates percutaneously for fracture fixation.

Methods: 20 MRI scans in 18 patients were analysed in the coronal, sagital and axial planes. Measurements were taken of the distance of anterior and posterior structures including neurovascular bundles from the tibial cortex as well as dimensional parameters. Measurements were taken by two observers on two occasions.

Results: The results demonstrate a good correlation in intraclass and interclass observations (kappa > 0.9) suggesting that these observations are reproducible and accurate. The readings also demonstrate the close proximity of anatomical structures around the tibia. The depth of the plafond is greater then 4 mm relative to the most distal aspect to the tibial cortex. The anterior and posterior neurovascular bundles are less than 3 mm from the tibial cortex.

Discussion: The measurements taken from around the tibia provide guidance and assistance in plate positioning and screw insertion for percutaneous fracture fixation by this method. The